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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/528,172 | 03/17/2005 | Sung Ho Ryu | 1751-377 | 6475 |

6449 7590 05/16/2007
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WASHINGTON, DC 20005

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| EXAMINER |
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SAIDHA, TEKCHAND

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| ART UNIT | PAPER NUMBER |
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1652

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| NOTIFICATION DATE | DELIVERY MODE |
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05/16/2007

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTO-PAT-Email@rfem.com

Office Action Summary

Application No.

10/528,172

Applicant(s)

RYU ET AL.

Examiner

Tekchand Saidha

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 6/8/07.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-13 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Restriction is required under 35 U.S.C. 121 and 372.
2. This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.
3. In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-5, drawn to an isolated **peptide complex** comprising a first peptide (elect one from 4 proteins) and a second peptide (elect one from 14 proteins).

Group II, claim(s) 6, drawn to a screening method for modulator of the peptide complex of claim 1.

Group III, claim(s) 7-13, drawn to a screening method for modulators of an interaction between peptide complex comprising a first peptide (elect one from 4 proteins) and a second peptide (elect one from 14 proteins) (see claim 7).

For each of inventions I-II above, restriction to one of the following is also required. Therefore, election is required of one of inventions I-II and **one** of **4** inventions of first peptide (a1), (a2), (a3) **or** a4); and **one** of **14** inventions of the second peptide of (1) actin, (2) glyceraldehydes-3-phosphate dehydrogenase (GAPDH), (3) Akt1**(14)** dopamine transporter (DAT).

Similarly, for invention III above, election is also required for **one** of **4** inventions of first peptide (a1), (a2), (a3) **or** a4); and **one** of **18** inventions of the second peptide of (1) actin, (2) aldolase (3) CRMP-2, **(4)**

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phospholipase C γ 1 (PLC- γ 1), (5) glyceraldehydes-3-phosphate dehydrogenase (GAPDH),(14) dopamine transporter (DAT).

4. The inventions listed as Groups I-III do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical feature for the following reasons: The technical feature linking Groups I-III appears to be not present because each of the first peptides (a1-a4) and each of the second peptides (1-14 or 1-18 proteins) forming the complex is a structurally distinct complex capable of carrying out a distinct function depending upon peptides used the construct. Therefore, with no special technical feature linking the complexes (species); the complexes having there own distinct structure, unity of invention is lacking.

Further, according to the international preliminary examination report [IPER] claims 1-5 lack novelty as being anticipated by Kim, J.H. et al., Biochemistry 41(10), 3414-3421 (200.03.); or Lee, S. et al., J. Biol. Chem. 277(8). 6542-6549 (2002.02.)

These references have been designated as 'X' references in the IPER. Kim et al. teach a method of screening a modulator between a 1st and 2nd peptide (example PLD and aldolase as per claim 7), wherein inclusion of aldolase metabolites fructose 1, 6-bisphosphate (F-1,6-P) or glyceraldehyde 3-phosphate (G-3-P) resulted in enhanced interaction between PLD2 and aldolase A (see abstract for example). See page 3417 columns 1-2, and page 3417 columns 1-2. Similarly Lee et al teach by immunochemistry that PLD2 and collapsin response mediator protein-2 (CRMP-2) are co-localized in the distal tips of neuritis (figure 9) and method of

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screening the inhibitor(s) or modulators (for example, Semaphorin 3A) of interaction between complexes of the two proteins (See abstract, results and discussion), and therefore anticipates claim 7, for example.

Therefore, Groups I-III share no special technical feature as defined by PCT Rule 13.2, as it does not define a contribution over the prior art.

This application contains claims directed to the following patentably distinct species [128 peptide complexes as explained below]. The species are independent or distinct because claims to the different species recite the mutually exclusive characteristics of such species. In addition, these species are not obvious variants of each other based on the current record.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, claims 1 and 7 are generic.

Therefore, searching and examination for each of the structurally distinct 128 peptide complexes (species) ($4 \times 14 = 56$; and $4 \times 18 = 72$) and the methods thereof would be an examination and search burden for these patentably distinct species due to their mutually exclusive characteristics. The species require a different field of search (e.g., searching different classes/subclasses or electronic resources, or employing different search queries); and/or the prior art applicable to one species would not likely be applicable to another species; and/or the species are likely to raise different non-prior art issues under 35 U.S.C. 101 and/or 35 U.S.C. 112, first paragraph.

Accordingly, Groups I-III comprising the complexes resulting from each of the first peptides (a1-a4) and each of the

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second peptides (1-14 or 1-18 proteins) are not so linked by the same or a corresponding special technical feature as to form a single general inventive concept.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

6. The examiner has required restriction between product and process claims. Where applicant elects claims directed to the product, and a product claim is subsequently found allowable, withdrawn process claims that depend from or otherwise include all the limitations of the allowable product claim will be rejoined in accordance with the provisions of MPEP § 821.04. Process claims that depend from or otherwise include all the limitations of the patentable product will be entered as a matter of right if the amendment is presented prior to final rejection or allowance, whichever is earlier. Amendments submitted after final rejection are governed by 37 CFR 1.116; amendments submitted after allowance are governed by 37 CFR 1.312.

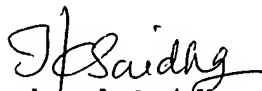
7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tekchand Saidha whose telephone number is (571) 272 0940. The examiner can normally be reached on 8.30 am - 5.00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ponnathapu Achutamurthy can be reached on (571) 272 0928. The fax phone number for the

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organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


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May 2, 2007